

IN THE CLAIMS

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Cancel claims 1-3 and 15 without prejudice or disclaimer of the subject matter thereof.

Amend claims 4-14 and 16-22 as follows:

--4. (Amended) A power supply comprising:

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an AC/DC converter which receives AC power having an AC input voltage, converts the AC power into DC power, and outputs the DC power, the AC/DC converter including a control circuit which controls an output voltage of the DC power output from the AC/DC converter, wherein the control circuit controls the output voltage of the DC power of the AC/DC converter to be equal to a predetermined DC voltage higher than an effective value of the AC input voltage;

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a DC/DC converter which receives the DC power from the AC/DC converter and controls a level of an output voltage of the DC/DC converter to be equal to a level of a voltage to be used by a load to provide a controlled output voltage of the DC/DC converter while the DC/DC converter supplies the controlled output voltage of the DC/DC converter to the load;

a DC converter which is connected to an input of the DC/DC converter; and

a DC power storage means which supplies electric power to the DC/DC converter through the DC converter;

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wherein the DC converter is bidirectional to enable the DC converter to charge and discharge the DC power storage means;

wherein the DC converter controls an output voltage of the DC converter to be boosted over a voltage of the DC power storage means while the DC converter supplies the electric power received from the DC power storage means to the input of the DC/DC converter;

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wherein the DC converter includes:

a first converter having an AC terminal, and a DC terminal connected to the input of the DC/DC converter;

a transformer having a high-voltage side winding connected to the AC terminal of the first converter, and a low-voltage side winding; and

a second converter having an AC terminal connected to the low-voltage side winding, and a DC terminal connected to the DC power storage means; and

wherein the transformer separates the DC power storage means from the AC/DC converter and from the DC/DC converter.

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5. (Amended) A power supply according to 8, wherein the DC converter is connected to an output side of the AC/DC converter so that the DC converter controls an output voltage of the DC converter to be lower than an output side voltage of the AC/DC converter while the DC converter outputs the electric power from the AC/DC converter to thereby charge the DC power storage means.

6. (Amended) A power supply according to claim 4, wherein the DC converter is connected to an output side of the AC/DC converter so that the DC converter controls an output voltage of the DC converter to be lower than an output side voltage of the AC/DC converter while the DC converter outputs the electric power from the AC/DC converter to thereby charge the DC power storage means.

7. (Amended) A power supply according to claim 6, wherein each of the first and second converters performs power conversion based on ON/OFF actuation of a semiconductor switching device contained in each of the first and second converters.

8. (Amended) A power supply comprising:

an AC/DC converter which receives AC power having an AC input voltage, converts the AC power into DC power, and outputs the DC power, the AC/DC converter including a control circuit which controls an output voltage of the DC power output from the AC/DC converter, wherein the control circuit controls the output voltage of the DC power of the AC/DC converter to be equal to a predetermined DC voltage higher than an effective value of the AC input voltage;

a DC/DC converter which receives the DC power from the AC/DC converter and controls a level of an output voltage of the DC/DC converter to be equal to a level of a voltage to be used by a load to provide a controlled output

voltage of the DC/DC converter while the DC/DC converter supplies the controlled output voltage of the DC/DC converter to the load;

a DC converter which is connected to an input of the DC/DC converter; and

a DC power storage means which supplies electric power to the DC/DC converter through the DC converter;

wherein the DC converter is bidirectional to enable the DC converter to charge and discharge the DC power storage means;

wherein, when electric power is interrupted or the AC/DC converter cannot maintain sufficient electric power output to be consumed by the load, the DC converter controls an output voltage of the DC converter to be boosted over a voltage of the DC power storage means while the DC converter supplies the electric power from the DC power storage means to the input of the DC/DC converter;

wherein the DC converter includes:

a first converter having an AC terminal, and a DC terminal connected to the input of the DC/DC converter;

a transformer having a high-voltage side winding connected to the AC terminal of the first converter, and a low-voltage side winding; and

a second converter having an AC terminal connected to the low-voltage side winding, and a DC terminal connected to the DC power storage means; and

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wherein the transformer separates the DC power storage means from the AC/DC converter and from the DC/DC converter.

9. (Amended) A power supply according to claim 8, wherein the DC converter is connected to an output side of the AC/DC converter so that the DC converter controls an output voltage of the DC converter to be lower than an output side voltage of the AC/DC converter while the DC converter outputs the electric power from the AC/DC converter to thereby charge the DC power storage means.

10. (Amended) A power supply according to claim 9, wherein each of the first and second converters performs power conversion based on ON/OFF actuation of a semiconductor switching device contained in each of the first and second converters.

11. (Amended) A power supply according to claim 4, further comprising a charger connected to an AC input for converting AC power into DC power and charging the DC power storage means with the DC power.

12. (Amended) A power supply according to claim 8, further comprising a charger connected to an AC input for converting AC power into DC power and charging the DC power storage means with the DC power.

13. (Amended) A power supply according to claim 8, wherein the AC/DC converter includes a power interruption detecting circuit which generates a power interruption detection signal when the power interruption detecting circuit detects interruption of the AC power and supplies the power interruption detection signal to the DC converter; and

wherein the DC converter supplies DC power to the DC/DC converter when the power interruption detection signal is supplied to the DC converter.

14. (Amended) A power supply according to claim 4, wherein the AC/DC converter includes a plurality of unit AC/DC converters connected in parallel with one another;

wherein the DC/DC converter includes a plurality of unit DC/DC converters connected in parallel with one another; and

wherein the DC converter includes a plurality of unit DC converters connected in parallel with one another.--

--16. (Amended) A power supply according to claim 4, further comprising a second DC/DC converter connected between an output of the AC/DC converter and the first-mentioned DC/DC converter;

wherein the AC/DC converter outputs the DC power to the input of the first-mentioned DC/DC converter through the second DC/DC converter; and

wherein the first-mentioned DC/DC converter includes a plurality of unit DC/DC converters connected in parallel with one another.

17. (Amended) A power supply according to claim 4, further comprising a second DC/DC converter connected between an output of the AC/DC converter and the first-mentioned DC/DC converter;

wherein the AC/DC converter outputs the DC power to the input of the first-mentioned DC/DC converter through the second DC/DC converter;

wherein the first-mentioned DC/DC converter includes a plurality of unit DC/DC converter groups each of which is constituted by a plurality of unit DC/DC converters connected in parallel with one another; and

wherein the plurality of unit DC/DC converter groups have a common input and supply electric power to independent load portions, respectively, constituting the load.

18. (Amended) A power supply according to claim 4, further comprising a second DC/DC converter connected between an output of the AC/DC converter and the first-mentioned DC/DC converter;

wherein the AC/DC converter outputs the DC power to the input of the first-mentioned DC/DC converter through the second DC/DC converter; and

wherein the first-mentioned DC/DC converter includes a plurality of unit DC/DC converters which have a common input connected to the second

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DC/DC converter, and outputs for supplying electric power to independent load portions, respectively, constituting the load.--

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--19. (Amended) A power supply according to claim 4, wherein the control circuit controls the output voltage of the DC power of the AC/DC converter to be equal to a predetermined DC voltage based on ON/OFF actuation of a semiconductor switching device of a main circuit of the AC/DC converter and effects control to suppress harmonic current in the received AC power.

20. (Amended) A power supply comprising a plurality of power supply units connected in parallel with one another, wherein each of said plurality of power supply units includes:

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an AC/DC converter which receives AC power, converts said AC power into DC power, and outputs said DC power, said AC/DC converter including a control circuit which controls an output voltage of said DC power output from said AC/DC converter, wherein said control circuit controls said output voltage of said DC power of said AC/DC converter to be equal to a predetermined DC voltage;

a DC/DC converter which receives said DC power from said AC/DC converter, and controls a level of an output voltage of said DC/DC converter to be equal to a level of a voltage to be used by a load while said DC/DC converter supplies said output voltage to said load;



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a DC converter which is connected to an input of said DC/DC converter; and

a DC power storage means which supplies electric power to said DC/DC converter through said DC converter, said DC converter being bidirectional to charge and discharge said DC power supply means;

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wherein said control circuit controls said output voltage of said DC power of said AC/DC converter to be equal to a predetermined DC voltage on the basis of ON/OFF actuation of a semiconductor switching device of a main circuit of said AC/DC converter and effects control to suppress harmonic current in the received AC power.--

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--21. (Amended) A power supply according to claim 4, wherein the DC converter includes a plurality of multiplexed DC converters connected in parallel.

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22. (Amended) A power supply according to claim 20, wherein the DC converter includes a plurality of multiplexed DC converters connected in parallel.--